

Notice of Allowability

Application No.

10/005,257

Examiner

Brian R. Gordon

Applicant(s)

JACOBS ET AL.

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9-20-04.
2. ☒ The allowed claim(s) is/are 2-6, 8-11, 13-17, 19-22, 24-28, 30-33, 35, 37-41, and 43-46.
3. ☒ The drawings filed on 2-19-02 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 12-3-01
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Peter J. Bilinsky on November 8, 2004.

The application has been amended as follows: Please amend the claims as indicated below:

1. (Canceled)

2. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;
dispensing aspirated fluid through said at least one dispense nozzle; and
effecting the relative velocity of the dispensed fluid by ~~at least one of changing~~
~~and modifying the a~~ variable fluid rate flow using said pump motor during said
dispensing step wherein said ~~at least one changing and modifying~~ step results in at
least one of a change and a modification to said variable fluid flow rate profile and in
which said relative velocity effecting step includes the step of offsetting a reference
position of said pump motor in order to shift at least a portion of said variable fluid flow
rate profile.

3. (Previously Presented) A method according to Claim 2, wherein said variable speed pump produces a decrease in pump piston velocity at the end of said dispensing step, in which said offsetting step offsets said reference position to cause an increase in fluid dispense velocity at the end of said dispensing step.
4. (Original) A method according to Claim 2, wherein said variable speed pump produces a sinusoidal fluid flow rate profile wherein the fluid flow rate becomes zero at the end of said dispensing step, wherein said offsetting step is applied to offset the end of said profile to provide a fluid flow rate at the end of said dispensing step.
5. (Original) A method according to Claim 4, wherein a predetermined volume of fluid is dispensed onto a target, said method including the additional step of pre-dispensing residual fluid remaining from said dispensing step onto one of said target and a separate target prior to a subsequent aspirating and dispensing step.
6. (Original) A method according to Claim 5, including the step of increasing the speed of said motor during at least said pre-dispensing step in order to increase the dispense velocity of said fluid.
7. (Canceled)
8. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:
 - aspirating fluid from said fluid supply;
 - dispensing aspirated fluid through said at least one dispense nozzle; and

effecting the relative velocity of the dispensed fluid ~~by at least one of changing~~ and modifying ~~the~~ a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one changing and~~ modifying step results in at least one of a change and a modification to said variable fluid flow rate profile, wherein said relative velocity effecting step includes the step of applying a variation in motor speed according to a profile having a shape which is inverted relative to said variable fluid flow rate profile.

9. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;
dispensing aspirated fluid through said at least one dispense nozzle; and
effecting the relative velocity of the dispensed fluid ~~by at least one of changing~~ and modifying ~~the~~ a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one changing and~~ modifying step results in at least one of a change and a modification to said variable fluid flow rate profile ~~and in which~~ wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produce a fluid flow rate of zero from the dispense nozzle, said relative velocity effecting step including the step of increasing the speed of the pump motor along portions of said profile in order to increase the fluid flow rate.

10. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump

motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

- aspirating fluid from said fluid supply;
- dispensing aspirated fluid through said at least one dispense nozzle; and
- effecting the relative velocity dispensed fluid by ~~at least one of changing and~~ modifying the a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one changing and~~ modifying step results in at least one of a change and a modification to said variable fluid flow rate profile ~~and in which~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said relative velocity effecting step including the step of applying a variation in motor speed to said pump over said dispensing step which includes a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step.

11. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

- aspirating fluid from said fluid supply;
- dispensing aspirated fluid through said at least one dispense nozzle; and
- effecting the relative velocity dispensed fluid by ~~at least one of changing and~~ modifying the a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one changing and~~ modifying step results in at least one of a change and a modification to said variable fluid flow rate profile, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing step is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said relative velocity effecting step including the step of increasing the speed of said pump motor during at least the beginning of said

dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid.

12. (Canceled)

13. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

- a. aspirating fluid from said fluid supply using a metering tip attached to a proboscis;
- b. dispensing aspirated fluid through said metering tip into a reaction vessel; and
- c. effecting the relative velocity fluid dispensed by said metering system by ~~at least one of changing and modifying the~~ a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one of said changing and modifying~~ step results in at least one change and modification to said variable fluid flow rate profile, wherein said relative velocity effecting step includes the step of offsetting a reference position of said pump motor in order to shift at least a portion of said fluid flow rate profile.

14. (Previously Presented) A method according to Claim 13, wherein said variable speed pump produces a decrease in pump piston velocity at the end of said dispensing step, in which said offsetting step offsets said reference position to cause an increase in fluid dispense velocity at the end of said dispensing step.

15. (Original) A method according to Claim 13, wherein said variable speed pump produces a sinusoidal fluid flow rate profile wherein the fluid flow rate becomes zero at the end of said dispensing step, wherein said offsetting step is applied to offset

the end of said profile to provide a non-zero fluid flow rate at the end of said dispensing step.

16. (Original) A method according to Claim 15, wherein a predetermined volume of fluid is dispensed into a first reaction vessel, said method including the additional step of pre-dispensing residual fluid remaining from said dispensing step onto one of said first reaction vessel and a second reaction vessel prior to a subsequent aspirating and dispensing step therein.

17. (Original) A method according to Claim 16, including the step of increasing the speed of said motor during at least said pre-dispensing step in order to increase the dispense velocity of said fluid.

18. (Canceled)

19. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

- a. aspirating fluid from said fluid supply using a metering tip attached to a proboscis;
- b. dispensing aspirated fluid through said metering tip into a reaction vessel; and
- c. effecting the relative velocity fluid dispensed by said metering system by at ~~least one of changing and~~ modifying the a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one of said changing and~~ modifying step results in at least one change and modification to said variable fluid flow rate profile, wherein said relative velocity effecting step includes the step of applying a

variation in motor speed according to a profile having a shape which is inverted relative to said fluid flow rate profile.

20. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

- a) aspirating fluid from said fluid supply using a metering tip attached to a proboscis;
- b) dispensing aspirated fluid through said metering tip into a reaction vessel; and
- c) effecting the relative velocity fluid dispensed by said metering system by at ~~least one of changing and~~ modifying the a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one of said changing and~~ modifying step results in at least one change and modification to said variable fluid flow rate profile, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produces a fluid flow rate of zero from the metering tip, said relative velocity effecting step including the step of increasing the speed of the pump motor along portions of said profile in order to increase the fluid flow rate.

21. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

- a) aspirating fluid from said fluid supply using a metering tip attached to a proboscis;

b) dispensing aspirated fluid through said metering tip into a reaction vessel; and
c) effecting the relative velocity fluid dispensed by said metering system by at least one of changing and modifying the a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one of said changing and~~ modifying step results in at least one change and modification to said variable fluid flow rate profile, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said relative velocity effecting step including the step of applying a variation in motor speed to said pump over said dispensing step which includes a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step from said metering tip.

22. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

a) aspirating fluid from said fluid supply using a metering tip attached to a proboscis;
b) dispensing aspirated fluid through said metering tip into a reaction vessel; and
c) effecting the relative velocity of fluid dispensed by said metering system by at least one of changing and modifying the a variable fluid rate flow using said pump motor during said dispensing step wherein said ~~at least one of said changing and~~ modifying step results in at least one change and modification to said variable fluid flow rate profile, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing step is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said relative velocity effecting step including the step of increasing the speed of said pump motor during at

least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid relative to said metering tip.

23. (Canceled)

24. (Currently Amended) A metering system comprising:

- a) at least one dispense nozzle;
- b) a fluid supply, and
- c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by ~~at least one of changing and modifying the~~ a fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile A, wherein said relative velocity effecting means includes means for offsetting a reference position of said pump motor in order to shift at least a portion of said fluid flow rate profile.

25. (Previously Presented) A metering system according to Claim 24, wherein said variable speed pump produces a decrease in pump piston velocity at the end of said dispensing step, wherein said reference position can be offset sufficiently to cause a relative increase in fluid dispense velocity at the end of a dispense phase.

26. (Original) A metering system according to Claim 24, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the fluid flow rate becomes zero at the end of a dispense phase, wherein said offsetting means is applied to offset the end of said profile to provide a non-zero fluid flow rate at the end of said dispense phase.

27. (Original) A metering system according to Claim 26, wherein a predetermined volume of fluid is dispensed into a first target during the dispense phase and in which offsetting causes a residual volume of fluid remaining to complete the dispense phase of the cycle following a dispense phase requiring a pre-dispense phase in which the residual fluid volume is dispensed into one of the first and a separate second target prior to an aspiration phase.

28. (Previously Presented) A metering system according to Claim 27, wherein said relative velocity effecting means includes means for increasing the speed of the pump motor during at least said pre-dispense phase in order to increase the dispense velocity of said fluid.

29. (Canceled)

30. (Currently Amended) A metering system comprising:

- a) at least one dispense nozzle;
- b) a fluid supply, and
- c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by ~~at least one of changing and modifying the~~ a fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile, wherein said relative velocity effecting means includes means for applying a variation in motor speed according to a profile having a shape which is substantially inverted relative to said fluid flow rate profile.

31. (Currently Amended) A metering system comprising:

- a) at least one dispense nozzle;
- b) a fluid supply, and
- c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by ~~at least one of changing and modifying the~~ a fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produces a fluid flow rate of zero from the metering tip, said relative velocity effecting means including means for increasing the speed of the pump motor along portions of said flow rate profile in order to increase the fluid flow rate.

32. (Currently Amended) A metering system comprising:

- a) at least one dispense nozzle;
- b) a fluid supply, and
- c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by ~~at least one of changing and~~ a fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said relative velocity effecting means

including means for applying a variation in motor speed to said pump during said dispense phase according to a motor speed profile having a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step.

33. (Currently Amended) A metering system comprising:

- a) at least one dispense nozzle;
- b) a fluid supply, and
- c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by ~~at least one of changing and modifying the~~ a fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing phase is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said relative velocity effecting means including means for increasing the speed of said pump motor during at least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid relative to said dispense nozzle.

34. (Canceled)

35. (Previously Presented) A metering system according to Claim 24, wherein said system is used in a clinical analyzer.

36. (Canceled)

37. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing for aspirating and dispensing at least one fluid into at least one reaction vessel for purposes of obtaining a reaction; and
a processing system for detecting at least one predetermined aspect of the reaction, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to ~~at least one of change and modify the~~ a fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile, wherein said relative velocity effecting means includes means for offsetting a reference position of said pump motor in order to shift at least a portion of said fluid flow rate profile.

38. (Previously Presented) A clinical analyzer according to Claim 37, wherein said variable speed pump produces a decrease in pump piston velocity at the end of said dispensing step, wherein said reference position can be offset sufficiently to cause a relative increase in fluid dispense velocity at the end of a dispense phase.

39. (Original) A clinical analyzer according to Claim 37, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the fluid flow rate becomes zero at the end of a dispense phase, wherein said offsetting means is applied

to offset the end of said profile to provide a non-zero fluid flow rate at the end of said dispense phase.

40. (Previously Presented) A clinical analyzer according to Claim 39, wherein a predetermined volume of fluid is dispensed from said metering tip into a first reaction vessel during the dispense phase and in which offsetting causes a residual volume of fluid remaining to complete the dispense phase of the cycle following a dispense phase requiring a pre-dispense phase in which the residual fluid volume is dispensed into one of the first and a separate second reaction vessel housed in said analyzer prior to an aspiration phase.

41. (Previously Presented) A clinical analyzer according to Claim 40, wherein said relative velocity effecting means includes means for increasing the speed of the pump motor during at least said pre-dispense phase in order to increase the dispense velocity of said fluid.

42. (Canceled)

43. (Currently Amended) A clinical analyzer comprising:
a housing;
a metering system disposed within said housing for aspirating and dispensing at least one fluid into at least one reaction vessel for purposes of obtaining a reaction; and
a processing system for detecting at least one predetermined aspect of the reaction, said metering system including:

- i) a proboscis retaining at least one of a plurality of metering tips;
- ii) a fluid supply, and
- iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to ~~at least one of change and~~ modify the a fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile, wherein said relative velocity effecting means includes means for applying a variation in motor speed according to a profile having a shape which is substantially inverted relative to said fluid flow rate profile.

44. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing for aspirating and dispensing at least one fluid into at least one reaction vessel for purposes of obtaining a reaction; and

a processing system for detecting at least one predetermined aspect of the reaction, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to ~~at least one of change and~~ modify the a fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produces a fluid flow rate of zero from the metering tip, said relative velocity effecting means including means for increasing the speed of the pump motor along portions of said flow rate profile in order to increase the fluid flow rate.

45. (Currently Amended) A clinical analyzer comprising:

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a housing;

a metering system disposed within said housing for aspirating and dispensing at least one fluid into at least one reaction vessel for purposes of obtaining a reaction; and
a processing system for detecting at least one predetermined aspect of the reaction, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to ~~at least one of change and modify the~~ a fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said relative velocity effecting means including means for applying a variation in motor speed to said pump during said dispense phase according to a motor speed profile having a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step.

46. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing for aspirating and dispensing at least one fluid into at least one reaction vessel for purposes of obtaining a reaction; and
a processing system for detecting at least one predetermined aspect of the reaction, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to ~~at least one of change and~~ modify the a fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing phase is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said relative velocity effecting means including means for increasing the speed of said pump motor during at least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid relative to said dispense nozzle.

47. (Canceled)

48. (Canceled)

49. (Canceled)

Allowable Subject Matter

2. Claims 2-6, 8-11, 13-17, 19-22, 24-28, 30-33, 35, 37-41, and 43-46 are allowed.
3. The following is an examiner's statement of reasons for allowance: The independent claims have been amended to incorporate limitations previously indicated as allowable (see previous office action).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

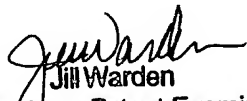
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

brg


Jill Warden
Supervisory Patent Examiner
Technology Center 1700